

EXHIBIT I



Jacqueline Moline, MD, MSc



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About the investigator

Jacqueline Moline, MD, MSc, works with Northwell Health leadership to develop initiatives aimed at promoting and engaging health and wellness for Northwell's workforce as well as the community at large. Dr. Moline is actively working on occupational medicine and population health programs, as well as an epidemiology research program.

Before joining Northwell, Dr. Moline was vice chair and associate professor in the Department of Community and Preventive Medicine at Mount Sinai School of Medicine, as well as associate professor of internal medicine. She served as the director of Mount Sinai's Clinical Center of Excellence within the World Trade Center (WTC) Medical Monitoring and Treatment Program, which has diagnosed and treated thousands of WTC responders in the New York metropolitan area and across the United States. She currently directs the Queens WTC Clinical Center of Excellence.

Board certified in internal medicine and occupational medicine, Dr. Moline serves on the editorial boards of several journals on industrial, occupational and environmental medicine, and she is the editor-in-chief of the Archives of Environmental and Occupational Health. She is a fellow of the American College of Physicians, American College of Occupational and Environmental Medicine, and the New York Academy of Medicine. Dr. Moline's professional affiliations also include membership in the American Medical Women's Association and the American Public Health Association. She is chair of the Health and Wellness Committee for the Fireman's Association of the State of New York and an executive board member of the New York Occupational and Environmental Medicine Association (NYOEMA).

Dr. Moline received her medical degree from the University of Chicago-Pritzker School of Medicine and a Master of Science degree in community medicine from the Mount Sinai School of Medicine. She completed a residency in internal medicine at Yale New Haven Hospital and an occupational and environmental medicine residency at Mount Sinai Medical Center.

Research focus

Dr. Moline's major research interests include World Trade Center health effects, asbestos exposure, occupational lung disorders and heavy metal toxicity. She has investigated occupational and environmental lead exposure and its impact on human health. Through grants in the Superfund Basic Science Research Program, Dr. Moline evaluated how the body burden of lead was impacted by hormonal fluxes that would affect bone turnover, such as pregnancy, lactation and menopause. Using state-of-the-art measurement of bone lead, a measure of long-term lead exposure, she sought to identify whether bioavailable lead levels increased. Working with collaborators in Mexico, where lead exposure was higher (and rates of lactation were also higher), her research team compared lead exposure in an urban U.S. environment and a rural Mexican environment. Levels of exposure once deemed "safe" are no longer considered to have no health consequences, so the impact of lead movement from bone to the blood has more potential to be relevant to human health outcomes.

After the 9/11 terrorist attacks, Dr. Moline's focus shifted to treating those in the New York City area affected by that day. She was part of the team of physicians who developed the WTC Worker and Volunteer Medical Screening Program, which evolved into the WTC Medical Monitoring and Treatment Program. After the passing of the Zadroga Act in 2011, the name of the program changed to the WTC Health Program. Dr. Moline is the Director of the **Northwell Health Queens World Trade Center Health Program**. (<https://www.northwell.edu/occupational-medicine-epidemiology-prevention/northwell-health-queens-world-trade-center-health-program>)

The **WTC Health Program** (<https://www.cdc.gov/wtc/>) is designed to provide exposure assessment, medical monitoring, treatment, referral and specialty care to those who responded to the attacks of 9/11, and those who worked and lived in downtown Manhattan at the time. The programs cover both physical and mental health effects of the disaster. It serves as a model medical surveillance program to those whose goal is to rapidly develop an exposure assessment post natural and man-made disasters, especially disasters involving mixed chemical exposures.

In addition to providing medical care, the WTC Health Program funds research to study health effects of 9/11. Dr. Moline has been involved in numerous research studies examining these health effects. Physical health effects include asthma, sinusitis, gastroesophageal reflux disease and cancers. She published one of the first case studies identifying multiple myeloma in WTC responders, a finding that was confirmed in multiple WTC-affected cohorts. Mental health effects include post-traumatic stress disorder (PTSD), depression, panic disorder and stress reaction. Comorbidity has shown to be extensive in this cohort.

Because of the nature of the disaster, with exposure to unprecedented amounts of aerosolized chemicals, combustion products and micronized building materials, pulmonary dysfunction is one of the most common diagnoses among WTC responders. Additionally, fires at ground zero burning until December 2001 and resuspension of settled dust, made exposures significant not only to those who were present at the time of building collapse, but to those who were at the site in the subsequent days, weeks and months. Follow-up evaluations of WTC-exposed workers have identified increased rates of sarcoid-like granulomatous disease, providing information to the medical community that dust exposures play an important etiological factor. Other notable findings include persistence of pulmonary function abnormalities for years after exposure to complex inhaled toxicants, and the potential for pulmonary fibrosis.

In 2019, Dr. Moline testified in congressional hearings regarding the need to reauthorize the September 11th Victim Compensation Fund for WTC survivors, and examining carcinogens in talc and best methods for asbestos detection.

Dr. Moline is leading, in collaboration with Dr. Anne Golden, the Occupational Lung Registry, to evaluate the legacy effects of asbestos in groups of workers. As part of her interest in asbestos related disease, Dr. Moline published the first case series, identifying cosmetic talc as the asbestos source leading in mesothelioma in 33 individuals. This research combines her interest in asbestos-related disease with the importance of informing the medical community about the significance of a comprehensive exposure history to determine disease etiology. Dr. Moline has also evaluated the cancer risks to volunteer firefighters in New York state, a first of its kind study, working with Dr. Anne Golden on the project.

Dr. Moline is also the director of the **Occupational and Environmental Medicine of Long Island (OEMLI)** (<https://www.northwell.edu/occupational-medicine-epidemiology-prevention/occupational-environmental-medicine>) clinic. OEMLI was established in 2013 as part of the New York State Department of Health (NYS DOH) **Occupational Health Clinic Network (OHCN)** (https://www.health.ny.gov/environmental/workplace/clinic_network.htm) to provide high quality occupational medicine services, and utilize a public health approach to prevent work-related illnesses and injuries. The clinic specializes in the diagnosis and treatment, as well as prevention, of occupational injury and disease. OEMLI's multidisciplinary team works with businesses, community groups, workers, unions, retired workers and members of the Long Island community with environmental exposures. They provide screenings, diagnosis, treatment and referrals for those with occupational illness and/or injuries, in addition to medical reports for workers' compensation. OEMLI also presents educational and preventive programs, focusing on health and safety issues while on the job.

Education

Mount Sinai School of Medicine, NY

Degree: MSc

Field of study: Community medicine

Mount Sinai School of Medicine, NY

Degree: Fellowship

Field of study: Occupational health and research

Mount Sinai School of Medicine, NY

Degree: Residency

Field of study: Occupational and environmental medicine

Yale University, CT

Degree: Residency

Field of study: Internal medicine

University of Chicago Pritzker School of Medicine, IL

Degree: MD

Field of study: Medicine

University of Chicago, IL

Degree: BA

Field of study: History Sci/Bio

Appointments

2020 Head of The Center for Occupational Medicine and Epidemiology, Institute for Clinical Outcomes Research, Feinstein Institutes for Medical Research, Northwell Health

2015 Professor, Occupational Medicine, Epidemiology and Prevention, and Internal Medicine, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

2013 Director, Occupational and Environmental Medicine of Long Island at Northwell Health

2012 Clinical Investigator, Patient-Oriented Research, Feinstein Institutes for Medical Research

2011 Director, Queens World Trade Center Health Program at Northwell Health

2010 Associate Professor, Occupational Medicine, Epidemiology and Prevention, and Internal Medicine, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

2010 Chair and Vice President, Occupational Medicine, Epidemiology and Prevention, Northwell Health

2010 Clinical Associate Adjunct Professor, Preventive Medicine, Mount Sinai School of Medicine

2006-2010 Principal Investigator, World Trade Center Medical Monitoring and Treatment Program Mount Sinai School of Medicine

2005-2010 Associate Professor, Community and Preventive Medicine, and Internal Medicine, Mount Sinai School of Medicine

2004-2006 Clinical Services Director and Co-Principal Investigator, World Trade Center Medical Monitoring Program

2002-2010 Vice Chair, Community and Preventive Medicine, Mount Sinai

2002-2004 Medical Core Director, World Trade Center Worker and Volunteer Program

1996-2005 Assistant Professor, Associate Professor, Community and Preventive Medicine, and Internal Medicine, Mount Sinai School of Medicine

Honors & awards

- 2020 Lifetime Achievement Award, Asbestos Disease Awareness Association (ADAO)
- 2020 9/11 Health Watch Annual Leadership Award
- 2014-2015 VIP Woman of the Year, National Association of Professional Women
- 2012 Sharon Joyce Schlanger Award for Outstanding Community Service, Northwell Health
- 2010 Humanitarian Award, New York City Detective Investigator's Association
- 2010 Service to Law Enforcement, Honorary Member, New York Police Department Honor Legion
- 2010 Kehoe Award of Merit, Outstanding Contributions in Occupational Medicine, American College of Occupational and Environmental Medicine
- 2010 Fellow, American College of Occupational and Environmental Medicine
- 2009 Fellow, American College of Physicians
- 2006 Fellow, New York Academy of Medicine
- 2004 Nomination, Teaching Achievement, IME Teach Award, Mount Sinai School of Medicine
- 2004 Research and Clinical Excellence Junior Faculty Award, Mount Sinai Faculty Council
- 1999 Potential Leadership in Occupational Medicine Award, New Jersey-New York Laborers' Research Foundation
- 1988 Excellence in Academics Award, Beta Chapter, Alpha Omega Alpha Honor Society, University of Chicago
- 1988 Excellence in Academics Award, American Medical Women's Association
- 1984 General Honors in the College and Honors, Division of Social Sciences, University of Chicago

Publications

1. B.J. Luft, C. Schechter, R. Kotov, J. Broihier, D. Reissman, K. Guerrero, I. Udasin, **J. Moline J**, Harrison, G. Friedman-Jimenez, R. H. Pietrzak, S.M. Southwick, and E. J. Bromet. "Exposure, probable PTSD and lower respiratory illness among World Trade Center rescue, recovery and clean-up workers." *Psychological Medicine* 2012 May; 42: 1069-1079.

2. Pietrzak, R. H., Schechter, C. B., Bromet, E. J., Katz, C. L., Reissman, D. B., Ozbay, F., Sharma, V., Crane, M., Harrison, D., Herbert, R., Levin, S. M., Luft, B. J., **Moline J**, Stellman, J. M., Udasin, I. G., Landrigan, P. J., & Southwick, S. M. (2012). "The burden of full and partial posttraumatic stress disorder among police involved in the World Trade Center rescue and recovery effort." *Journal of Psychiatric Research*, 46, 835-842.

3. Kim H, Herbert R, Landrigan P, Markowitz SB, **Moline J**, Savitz DA, Todd AC, Udasin IG, Wisnivesky JP. "Increased rates of asthma among World Trade Center disaster responders." *Am J Ind Med*. 2012 January; 55 (1): 44-53.

4. Wisnivesky Juan, Teitelbaum Susan, Todd Andrew, Boffetta Paolo, Crane Michael, Crowley Laura, de la Hoz Rafael, Dellenbaugh Cornelia, Harrison Denise, Herbert Robin, Kim Hyun, Jeon Yunho, Kaplan Julia, Katz Craig, Levin Stephen, Luft Ben, Markowitz Steven, **Moline J**, Ozbay Fatih, Pietrzak Robert, Shapiro Moshe, Sharma Vansh, Skloot Gwen, Southwick Steven, Stevenson Lori, Udasin Iris, Wallenstein Sylvan, Landrigan Philip. "Persistence of multiple illnesses in World Trade Center rescue and recovery workers: a cohort study." *The Lancet*. 2011 September 3; 378 (9794): 888-897.

5. Kim Hyun, Dropkin Jonathan, Spaeth Kenneth, Smith Francine, **Moline J**. "Patient Handling and Musculoskeletal Disorders Among Hospital Workers: Analysis of 7 Years of Institutional Workers' Compensation Claims Data." *American Journal of Industrial Medicine*. December 2011: 1-8.


6. Kara R. Perritt; Robin Herbert, MD; Stephen M. Levin, MD; **Moline J**. "Work-Related Injuries and Illnesses Reported by World Trade Center Response Workers and Volunteers." *Prehospital and Disaster Medicine*. 2011 December; Volume 26 (Issue 06): 401-401.

7. Crowley L, Herbert R, **Moline J**, Wallenstein S, Shukla G, Schechter C, Skloot G, Udasin I, Luft B, Shapiro M, Wong K, Sacks H, Landrigan P, Teirstein A. "Sarcoid Like" Granulomatous Pulmonary Disease in World Trade Center Disaster Responders." *Am. J. Ind. Med*. 2011 March; 54 (3): 175-184.

8. Altman KW, Desai SC, **Moline J**, de la Hoz RE, Herbert R, Gannon PJ, Doty RL. "Odor identification ability and self-reported upper respiratory symptoms in workers at the post-9/11 World Trade Center site." *Int Arch Occup Environ Health*. 2011 February; 84 (2): 131-137.

9. Udasin I, Schechter C, Crowley L, Sotolongo A, Gochfeld M, Luft B, **Moline J**, Harrison D, Enright P. "Respiratory symptoms were associated with lower spirometry results during the first examination of WTC responders." *Occup Environ Med*. 2011 Jan; 68 (1): 40-54.

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The Feinstein Institutes—the research institutes of Northwell Health, New York’s largest health care provider—is home to 50 research labs, 3,000 clinical research studies and 5,000 people raising the standard of medical innovation. We make breakthroughs in molecular medicine, genetics, cancer, brain research, mental health, autoimmunity and bioelectronic medicine.

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